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1646  
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Docket No.: CIBT-P01-119  
(PATENT)

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
Ling et al.

Application No.: 09/883848

Group Art Unit: 1646

Filed: June 18, 2001

Examiner: Not Yet Assigned

For: ANGIOGENESIS-MODULATING  
COMPOSITIONS AND USES

### INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents  
Washington, DC 20231

Pursuant to 37 CFR 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned.

A copy of each reference on PTO/SB/08 is attached.

While the information and references disclosed in this Information Disclosure Statement may be "material" pursuant to 37 CFR 1.56, it is not intended to constitute an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

Dated:

Respectfully submitted,

By 

David P. Halstead, Ph.D.

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Docket Number (Optional) CIBT-P01-119	Application Number 09/883,848
Applicant Ling et al.	
Filing Date June 18, 2001	Group Art Unit 1646

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

**FOREIGN PATENT DOCUMENTS**

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AA WO 95/18856	7/13/95	PCT			
	AB WO 98/35020	8/13/98	PCT			
	AC WO 00/18428	4/6/00	PCT			
	AD WO 00/25725	5/11/00	PCT			
	AE WO 00/41545	7/20/00	PCT			
	AF WO 00/74706	12/14/00	PCT			
	AG WO 01/19800 A2	3/22/01	PCT			
	AH WO 01/26644 A2	4/19/01	PCT			
	AI WO 01/74344 A2	10/11/01	PCT			

**OTHER DOCUMENTS***(Including Author, Title, Date, Pertinent Pages Etc.)*

AJ	Apelqvist, A. et al. Sonic hedgehog directs specialized mesoderm differentiation in the intestine and pancreas. <i>Current Biology</i> 7, 801-804 (1 Oct. 1997).
AK	Asahara, T. et al. Tie2 receptor ligands, angiopoietin-1 and angiopoietin-2, modulate VEGF-Induced postnatal neovascularization. <i>Circ. Res.</i> 83, 233-240 (1997).
AL	Ballara, S. C. et al. New vessels, new approaches: angiogenesis as a therapeutic target in musculoskeletal disorders. <i>Int. J. Exp. Path.</i> 80, 235-250 (1999).
AM	Banai, S. et al. Angiogenic-induced enhancement of collateral blood flow to ischemic myocardium by vascular endothelial growth factor in dogs. <i>Circulation</i> 89, 2183-2189 (May 1994).
AN	Battler, A. et al. Intracoronary injection of basic fibroblast growth factor enhances angiogenesis in infarcted swine myocardium. <i>J. Am. Coll Cardiol.</i> 22, 2001-2006 (Dec. 1993).
AO	Beck, L. Jr. & D'Amore, P. A. Vascular development: cellular and molecular regulation. <i>FASEB J.</i> 11, 365-373 (April 1997).
AP	Bitgood, M. J. & McMahon, A. P. Hedgehog and Bmp genes are coexpressed at many diverse sites of cell-cell interaction in the mouse embryo. <i>Dev. Biol.</i> 172, 126-138 (Nov. 1995).

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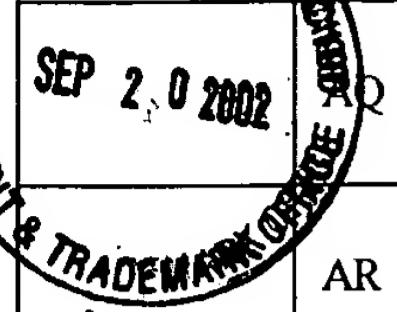
Docket Number (Optional)  
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 09/883,848

Applicant

Ling et al.

Filing Date

June 18, 2001

Group Art Unit  
 1646
 TECH CENTER 1600/2500  
 SEP 23 2002

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Q	Bitgood, M. J. et al. Sertoli cell signaling by Desert hedgehog regulates the male germline. <i>Curr. Biol.</i> 6, 298-304 (1996).
AR	Bhusham, M. et al. Levels of endothelial cell stimulating angiogenesis factor and vascular endothelial growth factor are elevated in psoriasis. <i>Br. J. Dermatol.</i> 131, 1054-1060 (Dec. 1994).
AS	Buschmann & Schaper, W. The pathophysiology of the collateral circulation (arteriogenesis). <i>J. Pathol.</i> 190, 338-342 (Feb. 2000).
AT	Carpenter, D. et al. Characterization of two patched receptors for the vertebrate hedgehog protein family. <i>PNAS</i> 95, 13630-13634 (10 Nov. 1998).
AU	Chiang, C. et al. Cyclopia and defective axial patterning in mice lacking sonic hedgehog gene function. <i>Nature</i> 383, 407-413 (1996).
AV	Cherrington, J. M. et al. New paradigms for the treatment of cancer: the role of anti-angiogenesis agents. <i>Adv. Cancer Res.</i> 79, 1-38 (2000).
AW	Couffinhal, T. et al. Impaired collateral vessel development associated with reduced expression of vascular endothelial growth factor in ApoE-/- mice. <i>Circulation</i> 99, 3188-3198 (1999).
AX	D'Amato. Angiogenesis Inhibition in Age-related Macular Degeneration. <i>Ophthalmology</i> 102, 1261-1262 (Sept. 1995).
AY	Ding, Q. et al. Mouse suppressor of fused is a negative regulator of sonic hedgehog signaling and alters the subcellular distribution of Gli 1. <i>Curr. Biol.</i> 7, 1119-1122 (Oct. 1999).
AZ	Dockter, J. L. Sclertome induction and differentiation. <i>Curr. Top Dev Biol.</i> 48, 77-127 (2000).
BA	Dodd, J. et al. The when and where of floor plate induction. <i>Science</i> 282, 1654-1657 (1998).
BB	Ericson, J. et al. Graded sonic hedgehog signaling and the specification of cell fate in the ventral neural tube. <i>Cold Spring Harbor Symp. Quant. Biol.</i> 62, 451-466 (1997).
BC	Ericson, J. et al. Sonic hedgehog: a common signal for ventral patterning along the rostrocaudal axis of the neural tube. <i>Int. J. Dev. Biol.</i> 39, 809-816 (1995).
BD	Engler, D. A. Use of vascular endothelial growth factor for therapeutic angiogenesis. <i>Circulation</i> 94, 1496-1498 (1 Oct. 1996).
BE	Fan, H. et al. Myc-epitope tagged proteins detected with the 9E10 antibody in immunofluorescence and immunoprecipitation assays but not in western blot analysis. <i>Biochem. Cell Biol.</i> 76, 125-128 (1998).
BF	Folkman, J. & Shing, Y. Angiogenesis. <i>J. Biol. Chem.</i> 267, 10931-10934 (5 June 1992).
BG	Fong, T. A. T. et al. SU5416 is a potent and selective inhibitor of the vascular endothelial growth factor receptor (Flk-1/KDR) that inhibits tyrosine kinase catalysis, tumor vascularization, and growth of multiple tumor types. <i>Cancer Res.</i> 59, 99-106 (Jan. 1999).

Form PTO/SB/08 <b>INFORMATION DISCLOSURE CITATION</b> <b>IN AN APPLICATION</b> <i>(Use several sheets if necessary)</i>		Docket Number (Optional) CIBT-P01-119	Application Number 09/883,848
		Applicant Ling et al.	
		Filing Date June 18, 2001	Group Art Unit 1646
SEP 20 2002 PATENT & TRADEMARK OFFICE U.S. GOVERNMENT	BH	Goodrich, L. V. et al. Altered neural cell fate and medulloblastoma in mouse patched mutants. <i>Science</i> 275, 109-1113 (1997).	TECH CENTER 1600/2000 SEP 23 2002 RECEIVED
	BI	Hammerschmidt, M. et al. The world according to hedgehog. <i>TIG</i> 13, 14-21 (Jan. 1997).	
	BJ	Harada, K. et al. Basic fibroblast growth factor improves myocardial function in chronically ischemic porcine hearts. <i>J. Clin. Invest.</i> 94, 623-630 (Aug. 1994).	
	BK	Hynes, M. et al. The seven-transmembrane receptor Smoothened cell-autonomously induces multiple ventral cell types. <i>Nat. Neurosci.</i> 3, 41-46 (Jan. 2000).	
	BL	Ingham, P.W. Signaling by hedgehog family proteins in Drosophila and vertebrate development. <i>Curr. Opin. Genet. Dev.</i> 5, 492-498 (1995).	
	BM	Isner, J. M. et al. Arterial gene transfer for therapeutic angiogenesis in patients with peripheral artery disease. <i>Hum. Gene Ther.</i> 7, 959-988 (20 May 1996).	
	BN	Iwamoto, M. et al. Actions of hedgehog proteins on skeletal cells. <i>Crit. Rev. Oral Biol. Med.</i> 10, 477-486 (1999).	
	BO	Jensen, A. M. & Wallace, V. A. Expression of Sonic hedgehog and its putative role as a precursor cell mitogen in the developing mouse retina. <i>Develop.</i> 124, 363-371 (Jan. 1997).	
	BP	Johnson, R. L. & Tabin, C. J. Molecular models for vertebrate limb development. <i>Cell</i> 90, 979-990 (1997).	
	BQ	Karasek, M. A. Progress in our understanding of the biology of psoriasis. <i>Cutis</i> 64, 319-322 (Nov. 1999).	
	BR	Karp, S. J. et al. Indian hedgehog coordinates endochondral bone growth and morphogenesis via parathyroid hormone related-protein-dependent and -independent pathways. <i>Devel.</i> 127, 543-548 (2000).	
	BS	Kenyon, B. M. et al. A model of angiogenesis in the mouse cornea. <i>Invest. Ophthalmol. Vis. Sci.</i> 37, 1625-1632 (1996).	
	BT	Klagsbrun, M. & D'Amore, P. A. Regulators of angiogenesis. <i>Annu. Rev. Physiol.</i> 53, 217-239 (1991).	
	BU	Klohs, W. D. & Hamby, J. M. Antiangiogenic agents. <i>Curr. Opin. Biotechnol.</i> 10, 544-549 (Dec. 1999).	
	BV	Kornowski, R. et al. Comparison between left ventricular electromechanical mapping and radionuclide perfusion imaging for detection of myocardial viability. <i>Circulation</i> 98, 1837-1841 (Nov. 1998).	
	BW	Kornowski, R. et al. Delivery strategies to achieve therapeutic myocardial angiogenesis. <i>Circulation</i> 101, 454-458 (Feb. 2000).	
	BX	Laham, R. J. et al. Intrapericardial delivery of fibroblast growth factor-2 induces neovascularization in a porcine model of chronic myocardial ischemia. <i>J. Pharmacol. Exp. Ther.</i> 292, 795-802 (Feb. 2000).	

Form PTO/SB/08 <b>INFORMATION DISCLOSURE CITATION IN AN APPLICATION</b> <i>(Use several sheets if necessary)</i>		Docket Number (Optional) CIBT-P01-119	Application Number 09/883,848
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BY	Landau, C. et al. Intrapericardial basic fibroblast growth factor induces myocardial angiogenesis in a rabbit model of chronic ischemia. <i>Am. Heart J.</i> 129, 924-931 (May 1995).		
BZ	Lazarous, D. F. et al. Comparative Effects of Basic Fibroblast Growth Factor and Vascular Endothelial Growth Factor on Coronary Collateral Development and the Arterial Response to Injury. <i>Circulation</i> 94, 1074-1082 (Sept. 1996).		
CA	Lemire, J. M. et al. Characterization of cloned aortic smooth muscle cells from young rats. <i>Am. J. Pathol.</i> 144, 1068-1081 (1994).		
CB	Litingtung, Y. et al. Sonic hedgehog is essential to foregut development. <i>Nat. Genet.</i> 20, 58-61 (1998).		
CC	MaGovern C. J. et al. Regional angiogenesis induced in nonischemic tissue by an adenoviral vector expressing vascular endothelial growth factor. <i>Hum. Gene. Ther.</i> 8, 215-227 (20 Jan. 1997).		
CD	Majesky, M. W. A little VEGF goes a long way: Therapeutic angiogenesis by direct injection of vascular endothelial growth factor-encoding plasmid DNA. <i>Circulation</i> 94, 3062-3064 (15 Dec. 1996).		
CE	Mesri, E. A. et al. Expression of vascular endothelial growth factor from a defective herpes simplex virus type 1 amplicon vector induces angiogenesis in mice. <i>Circ. Res.</i> 76, 161-167 (Feb. 1995).		
CF	Motoyama, J. et al. Overlapping and non-overlapping Ptch2 expression with Shh during mouse embryogenesis. <i>Mech. Dev.</i> 78, 81-84 (Nov. 1998).		
CG	Murone, M. et al. Hedgehog signal transduction: from flies to vertebrates. <i>Exp. Cell Res.</i> 253, 25-33 (25 Nov. 1999).		
CH	Murone, M. et al. Sonic hedgehog signaling by the patched smoothened receptor complex. <i>Curr. Biol.</i> 9, 76-84 (28 Jan. 1996).		
CI	Ozaki, H. et al. Blockade of vascular endothelial cell growth factor receptor signaling is sufficient to completely prevent retinal neovascularization. <i>Am. J. Pathol.</i> 156, 697-707 (Feb. 2000).		
CJ	Parmantier, E. et al. Schwann cell-derived Desert hedgehog controls the development of peripheral nerve sheaths. <i>Neuron</i> 23, 713-724 (1999).		
CK	Passaniti, A. et al. Methods in Laboratory Investigation: A Simple, Quantitative Method for Assessing Angiogenesis and Antiangiogenic Agents Using Reconstituted Basement Membrane, Heparin, and Fibroblast Growth Factor. <i>Lab. Invest.</i> 67, 519-528 (1992).		
CL	Peacock, D. J. et al. A Novel Angiogenesis Inhibitor Suppresses Rat Adjuvant Arthritis. <i>Cell Immunol.</i> 160, 178-184 (Feb. 1995).		
CM	Pearlman, J. D. Magnetic resonance mapping demonstrates benefits of VEGF-induced myocardial angiogenesis. <i>Nat. Med.</i> 1, 1085-1089 (Oct. 1995).		
CM	Pearse, R. V. II et al. Vertebrate homologs of Drosophila suppressor of fused interact with the gli family of transcriptional regulators. <i>Dev. Biol.</i> 212, 323-336 (15 Aug. 1999).		
CO	Pepinsky, R. B. et al. Identification of a palmitic acid-modified form of human Sonic hedgehog. <i>J. Biol. Chem.</i> 273, 14037-14045 (1998).		

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RECEIVED PATENT & TRADEMARK OFFICE SEP 2 0 2002		Pepinsky, R. B. et al. Mapping sonic hedgehog-receptor interactions by steric interference. <i>J. Biol. Chem.</i> 275, 10996-11001 (2000).	TECH CENTER 1600-2000 SEP 2 3 2002
	CQ	Perrimon, N. Hedgehog and beyond. <i>Cell</i> 80, 517-520 (1995).	
	CR	Pola et al. The morphogen Sonic hedgehog is an indirect angiogenic agent upregulating two families of angiogenic growth factors. <i>Nat. Med.</i> 7, 706-711 (2001).	
	CS	Rivard, A. & Isner, J. M. Angiogenesis and vasculogenesis in treatment of cardiovascular disease. <i>Mol. Med.</i> 4, 429-440 (Jul 1998).	
	CT	Rivard, A. et al. Age-dependent impairment of angiogenesis. <i>Circulation</i> 99, 111-120 (Jan. 1999).	
	CU	Rothman, A. et al. Development and characterization of a cloned rat pulmonary arterial smooth muscle cell line that maintains differentiated properties through multiple subcultures. <i>Circulation</i> 86, 1977-1986 (1992).	
	CV	Sato, N. et al. Induction of the hair growth phase in postnatal mice by localized transient expression of Sonic hedgehog. <i>J. Clin. Invest.</i> 104, 855-864 (Oct. 1999).	
	CW	Schratzberger, P. et al. Favorable effect of VEGF gene transfer on ischemic peripheral neuropathy. <i>Nat. Med.</i> 6, 405-413 (April 2000).	
	CX	Shou, M. et al. Effect of basic fibroblast growth factor on myocardial angiogenesis in dogs with mature collateral vessels. <i>J. Am. Coll. Cardiol.</i> 29, 1102-1106 (April 1997).	
	CY	St.-Jacques, B. et al. Sonic hedgehog signaling is essential for hair development. <i>Curr. Biol.</i> 8, 1058-1068 (1998).	
	CZ	St.-Jacques, B. et al. Indian hedgehog signaling regulates proliferation and differentiation of chondrocytes and is essential for bone formation. <i>Genes Dev.</i> 13, 2072-2086 (1999).	
	DA	Stone, D. M. et al. Characterization of the human suppressor of fused, a negative regulator of the zinc-finger transcription factor Gli. <i>J. Cell. Sci.</i> 112, 4437-4448 (Dec. 1999).	
	DB	Storgard, C. M. et al. Decreased angiogenesis and arthritic disease in rabbits treated with an alphavbeta3 antagonist. <i>J. Clin. Invest.</i> 103, 47-54 (Jan. 1999).	
	DC	Takeshita, S. et al. Intramuscular administration of vascular endothelial growth factor induces dose-dependent collateral artery augmentation in a rabbit model of chronic limb ischemia. <i>Circulation</i> 90, 228-234 (Nov. 1994).	
	DD	Takeshita, S. et al. Therapeutic angiogenesis following arterial gene transfer of vascular endothelial growth factor in a rabbit model of hindlimb ischemia. <i>Biochem. Biophys. Res. Comm.</i> 227, 628-635 (14 Oct. 1996).	
	DE	Taylor, F. R. et al. Enhanced potency of human sonic hedgehog by hydrophobic modification. <i>Biochemistry</i> 10, 4359-4371 (April 2001).	
	DF	Traiffort, E. et al. Discrete localizations of hedgehog signaling components in the developing and adult rat nervous system. <i>Eur. J. Neurosci.</i> 11, 3199-3214 (Sept. 1999).	

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Ling et al.Filing Date  
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1646

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SEP 23 2002

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DG	Traifort, E. et al. Regional Distribution of Sonic Hedgehog, patched, and smoothened mRNA in the adult rat brain. <i>Neurochem.</i> 70, 1327-1330 (March 1998).
DH	Unger, E. F. Basic fibroblast growth factor enhances myocardial collateral flow in a canine model. <i>Am. J. Physiol.</i> 266, 1583-1595 (April 1994).
DI	Vale, P.R. et al. Catheter-based myocardial gene transfer utilizing nonfluoroscopic electromechanical left ventricular mapping. <i>J. Am. Coll. Cardiol.</i> 34, 246-254 (July 1999).
DJ	Valentini, R. P. et al. Post-translational Processing and Renal Expression of Mouse Indian Hedgehog. <i>J. Biol. Chem.</i> 272, 8466-8473 (28 March 1996).
DK	Walsh, D. A. Angiogenesis and arthritis. <i>Rheumatology</i> 38, 103-112 (Feb. 1999).
DL	Wang, L. C. et al. Conditional disruption of hedgehog signaling pathway defines its critical role in hair development and regeneration. <i>J. Invest. Dermatol.</i> 114, 901-908 (May 2000).
DM	Wood, J. M. et al. PTK787/ZK 222584, a novel and potent inhibitor of vascular endothelial growth factor receptor tyrosine kinases, impairs vascular endothelial growth factor-induced responses and tumor growth after oral administration. <i>Cancer Res.</i> 60, 2178-2189 (April 2000).
DN	Yancopoulos, G. D. et al. Vasculogenesis, angiogenesis, and growth factors: ephrins enter the fray at the border. <i>Cell</i> 93, 661-664 (29 May 1998).
DO	Yanagisawa-Miwa, A. et al. Salvage of infarcted myocardium by angiogenic action of basic fibroblast growth factor. <i>Science</i> 257, 1401-1403 (4 Sept. 1992).
DP	Zhu, Z. & Witte, L. Inhibition of tumor growth and metastasis by targeting tumor-associated angiogenesis with antagonists to the receptors of vascular endothelial growth factor. <i>Invest. New Drugs</i> 17, 195-212 (1999).

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.

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